KCM-7911

H.264 4-Megapixel IP D/N PoE Outdoor Hemispheric Camera with Advanced WDR (DC 12V / PoE)

Ver. 2013/10/07

ACTi
Connecting Vision

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Precautions

Read these instructions

You should read all the safety and operating instructions before using this product.

Heed all warnings

You must adhere to all the warnings on the product and in the instruction manual. Failure to follow the safety instruction given may directly endanger people, cause damage to the system or to other equipment.

Servicing

Do not attempt to service this video device yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Trademarks

All names used in this manual are probably registered trademarks of respective companies.

Liability

Every reasonable care has been taken during the writing of this manual. Please inform your local office if you find any inaccuracies or omissions. We cannot be held responsible for any typographical or technical errors and reserve the right to make changes to the product and manuals without prior notice.

FCC/CE Regulation

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the users will be required to correct the interference at their own expense.

Safety Instructions

Don’t use the power supply with other voltages

This device is likely to be damaged or damage other equipments / personnel, if you use a power supply with different voltage than the one included with this device. All warranty of this product will be voided in the situations above.

Don’t open the housing of the product

Cleaning

Disconnect this video product from the power supply before cleaning.

Attachments

Do not use attachments not recommended by the video product manufacturer as they may cause hazards.

Water and Moisture

Do not use this video product near water, for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool and the like.

Don’t use accessories not recommended by the manufacturer

Only install this device and the power supply in a dry place protected from weather

Servicing

Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring service

Disconnect this video product from the power supply immediately and refer servicing to qualified service personnel under the following conditions.

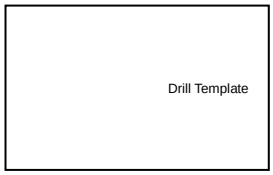
1) When the power-supply cord or plug is damaged
2) If liquid has been spilled, or objects have fallen into the video product.
3) If the video product has been directly exposed to rain or water.
4) If the video product does not operate normally by following the operating Instructions in this manual. Adjust only those controls that are covered by the instruction manual, as an improper adjustment of other controls may result in damage, and will often require extensive work by a qualified technician to restore the video product to its normal operation.

Safety Check

Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine if the video product is in proper operating condition.

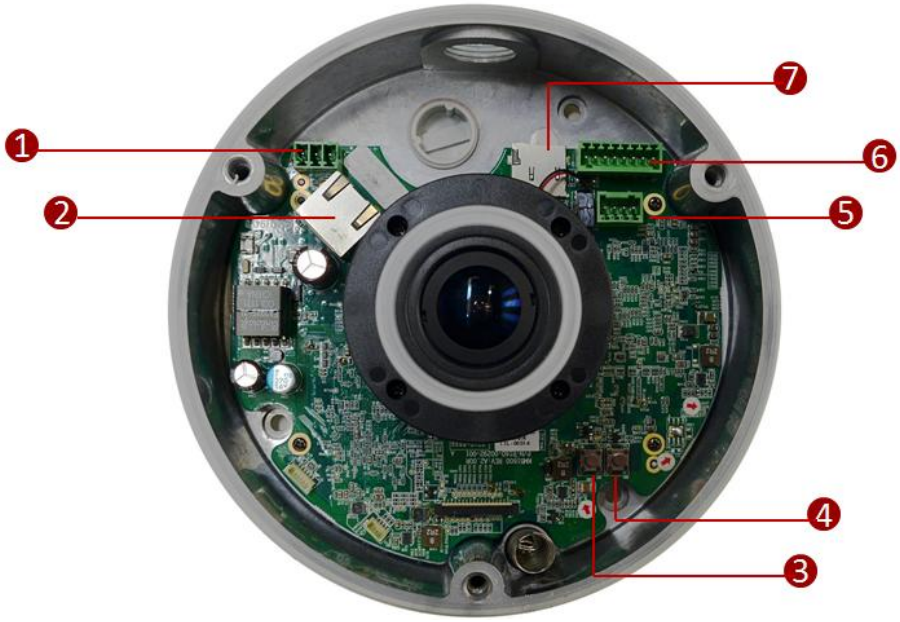
Introduction

Package Contents

Camera	Cable Gland	Conduit Gland
Hex Wrench	**Screw Plugs**	**Screws for Surface Mount**
Terminal Block (for Power)	**Terminal Block (for DI/DO)**	**Terminal Block (for Audio In/Out)**
Warranty Card	**Quick Installation Guide**	**Drill Template**
		

NOTE: The camera screws come with rubber rings on them. If the screws you received do not have rubber rings, please contact your local sales agents or our **Customer Help Desk (CHD)** for support.

Physical Description



1. DC 12v Power Input
2. Ethernet Port
3. Reset Button
4. Power Button
5. Audio Input / Output
6. Digital Input / Output
7. Micro SDHC Card Slot

1) DC 12V Power Input

In case the camera is connected to a non-PoE (Power over Ethernet) switch, use this connector to connect the camera to an external power adaptor (not included). See ***Connecting a Power Adaptor (Optional)*** on page 22 for more information.

2) Ethernet Port

The Ethernet port connects to a network using a standard Ethernet cable.

3) Reset Button

The Reset button is used to restore the factory default settings of the camera, including the administrator's password.

The reset button can be used for following purposes:

1. The administrator's password has been forgotten and therefore the camera cannot be accessed.
2. In case of IP address, mask, or allow/deny filter related issues, resulting with inability to modify these settings.
3. In case of connectivity issues or abnormal video quality.

How to do the reset properly?

Step 1: Disconnect the power supply (e.g. disconnect the power adaptor or a PoE switch / injector).

Step 2: Press and hold the reset button.

Step 3: Connect the power supply while keeping the reset button pressed. During this time the Power LED may turn on and turn off several times.

Step 4: Wait for 45 seconds and then release the reset button.

4) Power Button

Press the Power button to reboot the camera.

5) Audio Input / Output

This connector connects to audio input and output devices, such as microphones and speakers, using the bundled terminal block. See ***Connecting Audio In / Out Devices (Optional)*** on page 27 for more information.

6) Digital Input / Output

This connector connects to digital input or output devices, such as alarm triggers, panic buttons, etc. Digital Input (DI) and Digital Output (DO) devices are used in applications like motion detection, event triggering, alarm notifications, etc. See ***Connecting DI/DO Devices (Optional)*** on page 24 for more information.

7) Micro SDHC Card Slot

Insert a Micro SDHC card here for local recording (card not included in the package).

Installation Procedures

There are several mounting options that you can use to install the camera. Select the most suitable solution for your installation environment.

Mounting Solutions

Mount Types	Accessories
Surface Mount	Suitable when mounting the camera on flat and smooth surface, like ceilings or walls. This solution directly installs the camera to the surface without additional accessories. See ***Installing the Camera on a Flat Surface*** on page 12 for more information.
Rough Surface Mount	Suitable when mounting the camera on rough surfaces using an additional surface mount plate.
	PMAX-0802
Tilted Wall Mount	Suitable when mounting the camera on high walls. The camera can be tilted 10° to capture a larger viewing angle below the camera and less on the ceiling.
	PMAX-0310
Pendant Mount	Suitable when mounting the camera on hard and high cielings.
SMAX-0053	PMAX-0101 + PMAX-0103
SMAX-0051	PMAX-0101 + PMAX-0102

Vertical Pole Mount	Suitable when mounting the camera on a vertical pole.
	PMAX-0310 + PMAX-0503
	PMAX-0101 + PMAX-0303 + PMAX-0503
	PMAX-0101 + PMAX-0305 + PMAX-0503
Horizontal Pole Mount	Suitable when mounting the camera on a horizontal pole.
	PMAX-0101 + PMAX-0102 + PMAX-0503
Corner Mount	Suitable when mounting the camera on a corner area. The camera can also be tilted 10° to capture a larger viewing angle below the camera and less above.
	PMAX-0310 + PMAX-0402

NOTE:

- For more information about the mounting solutions and accessories, please check the *Mounting Accessory Selector* in our website (http://www.acti.com/mountingselector).
- The mounting accessories are not included in the package. Contact your sales agents to purchase.

Installing the Camera on a Flat Surface

This section covers the step-by-step procedures in directly mounting the camera on a flat and smooth surface, like ceilings or walls.

The installation procedures of other mounting solutions are covered in the Installation Guide downloadable from the website (http://www.acti.com/mountingselector).

Step 1: Drill the Holes

1. Mark the screw holes location on the ceiling/wall, then drill the holes and insert the plastic plugs.

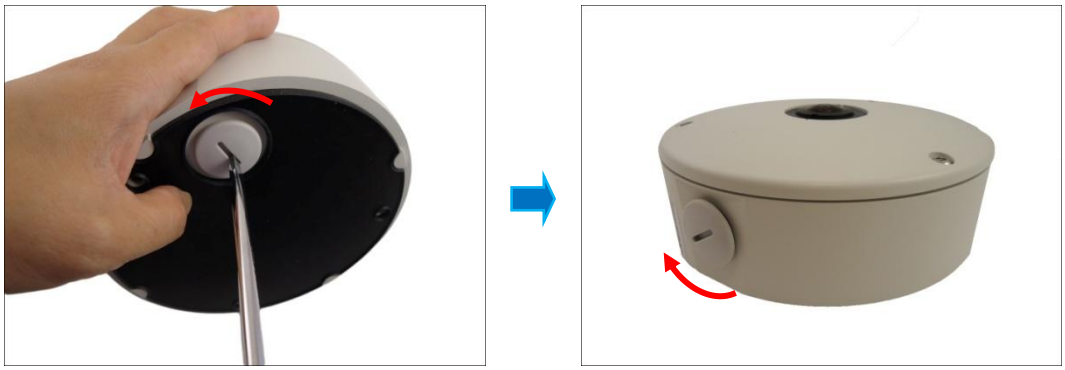
   IMPORTANT! For wall installations, note that the camera must be installed with the cable hole facing up to install the camera with a correct orientation.

2. Determine how the cables will be routed: pass through the surface or along the surface.

   - ***If the cables will pass through the surface***:

     a. Drill the cable hole location on the surface.

     b. Remove the cap covering the bottom hole of the camera, and attach the cap to the side hole to close it. The network cable will pass through the surface and the bottom hole to the camera.



   - ***If the cables will be routed along the surface***, skip to the next step.

Step 2: Open the Camera Cover

1. Loosen the three (3) screws using the supplied hex wrench.

2. Lift to open the cover.

NOTE: Do not abruptly lift the cover; it is attached to the camera body with a spring wire.

Step 3: Prepare for Waterproof Installation

The camera comes with two (2) glands used for waterproof installation: Cable gland and Conduit Gland. Determine the type of waterproof solution that is applicable to your installation requirements and prepare the necessary accessories or purchase extra materials.

Cable Gland	Conduit Gland
For use with an ***EXTERIOR-GRADE*** Ethernet cable. Exterior-grade Ethernet cables are already waterproof.	For use with **3/8”** flexible conduit. Recommended when an exterior-grade Ethernet cable is not available or when other input/output devices or an external power adaptor will be connected to the camera.

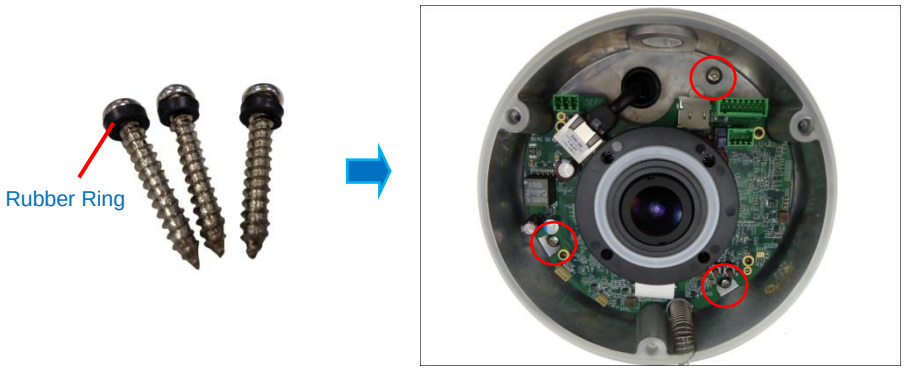
and

Step 4: Connect the Cable(s)

- To connect the cable using the cable gland solution, see ***Waterproof Solution with Naked Cable*** on page 16.
- To connect the cable(s) using the conduit gland solution, see ***Waterproof Solution with Conduit*** on page 19.

Step 5: Install the Camera to the Surface

1. If necessary, insert a micro SDHC card into the card slot of the camera.
2. Attach the camera to the surface using the three (3) supplied screws.



NOTE: Make sure the camera screws have rubber rings. If the screws you received do not have rubber rings, please contact your local sales agents or our **Customer Help Desk (CHD)** for support.

Step 6: Close the Cover

Tighten the three (3) screws to secure the cover.

Step 7: Access the Camera Live View

See ***Accessing the Camera*** on page 28 for more information.

Waterproof Solutions

There are two ways to do the waterproof cabling installation:

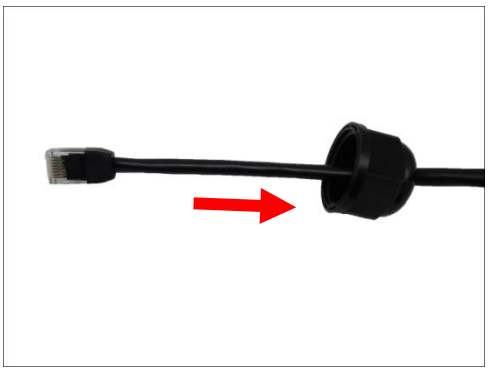
- **Waterproof with Naked Cable**: This installation uses the supplied cable gland and an ***exterior-grade*** Ethernet cable (not supplied). Exterior-grade cables are already waterproof and thus, do not require a conduit.
- **Waterproof with Conduit**: This installation uses the supplied conduit gland and a **3/8”** flexible conduit (not supplied). This is the recommended solution if other input / output devices or an external power adaptor will be connected to the camera.

Waterproof Solution with Naked Cable

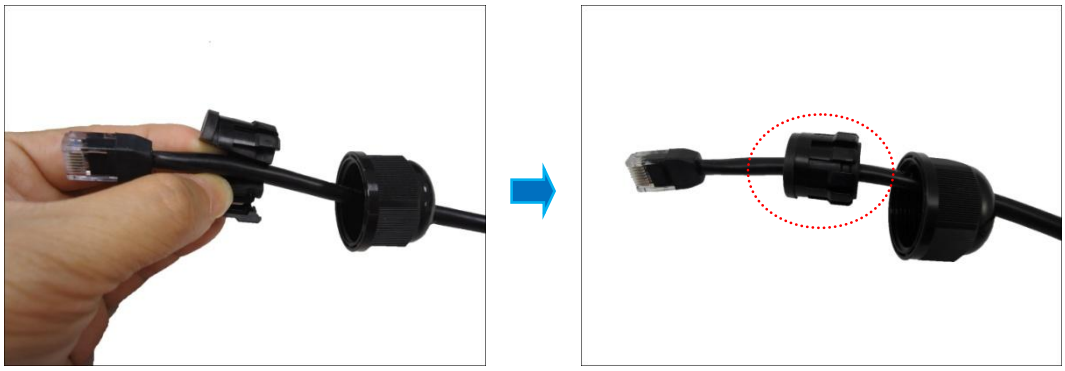
This section describes the procedures to waterproof the cabling connections using an exterior-grade Ethernet cable.

1. Disassemble the cable gland as shown below:

2. Insert the clamping nut into the Ethernet cable.



3. Insert the sealing insert with claw.



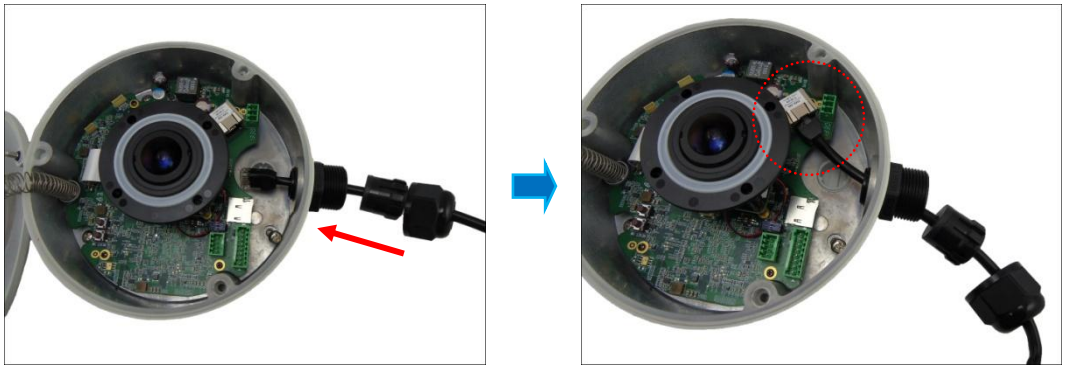
4. Attach the cable gland body to the hole of the camera.

Attach to Camera Side Hole

Attach to Camera Bottom Hole

NOTE: The following images are taken using the side hole of the camera; the same procedures apply when using the bottom side hole.

5. Insert the Ethernet cable through the cable gland body and connect it to the Ethernet port of the camera.



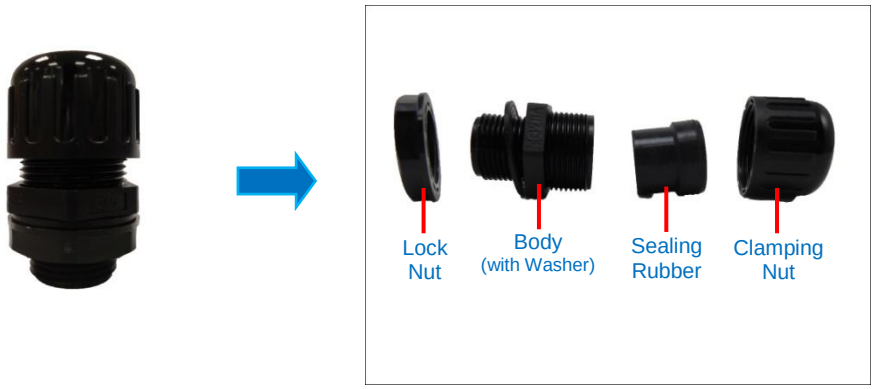
6. Insert the claw and rubber insert into the cable gland body and then attach the clamping nut to complete the cable solution.

NOTE: Make sure the clamping nut is tightly attached to the cable gland body.

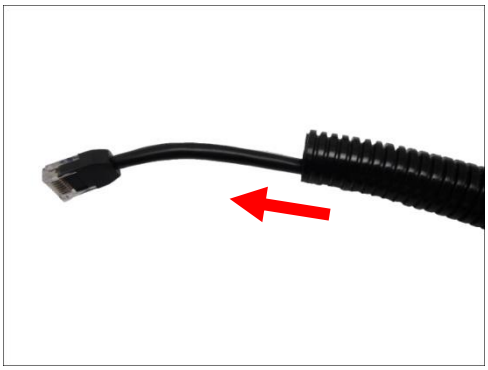
Waterproof Solution with Conduit

This section describes the procedures to waterproof the cabling connections using a flexible conduit with 3/8” trade size (not supplied). This is the recommended solution when connecting an external power adaptor, audio in/out, or digital input/output (DI/DO) devices to the camera.

1. Disassemble the cable gland as shown below:



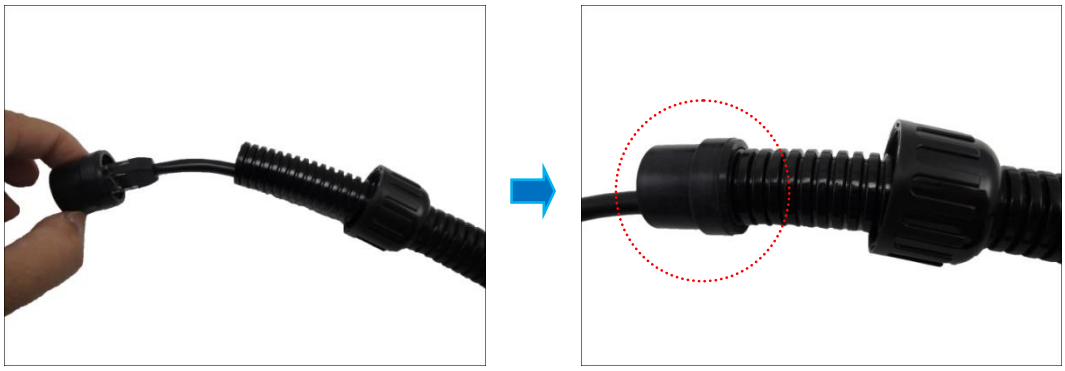
2. Pull the Ethernet cable and other cables (if any) through the flex conduit.



NOTE: To connect an external power adaptor, audio in/out, or digital input/output (DI/DO) devices, insert the cables without connectors through the flex conduit together with the Ethernet cable at this point.

3. Insert the clamping nut through the flex conduit.

4. Insert the sealing rubber and attach it at the end of the flex conduit.



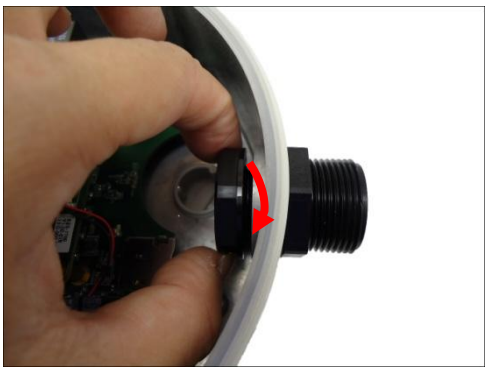
5. Attach the conduit gland body to the hole of the camera.

Attach to Camera Side Hole

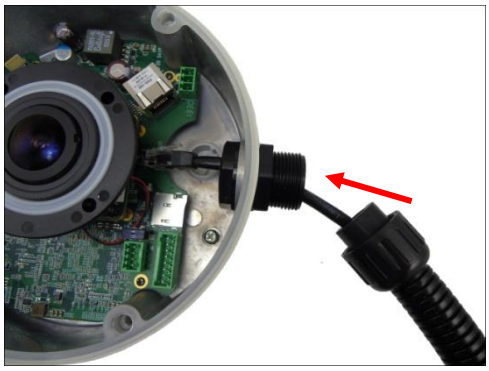
Attach to Camera Bottom Hole

NOTE: The following images are taken using the side hole of the camera; the same procedures apply when using the bottom side hole.

6. Attach the lock nut to secure the conduit gland body to the camera.



7. Insert the Ethernet cable and other cables (if any) through the conduit gland body.

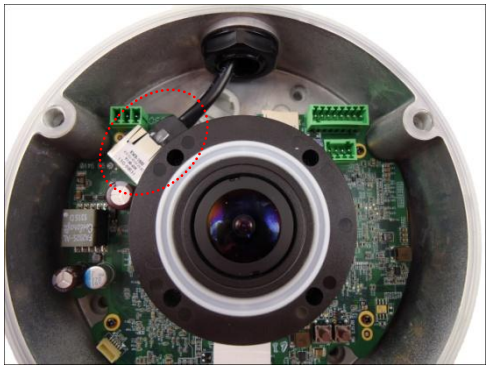


Ethernet Cable Only

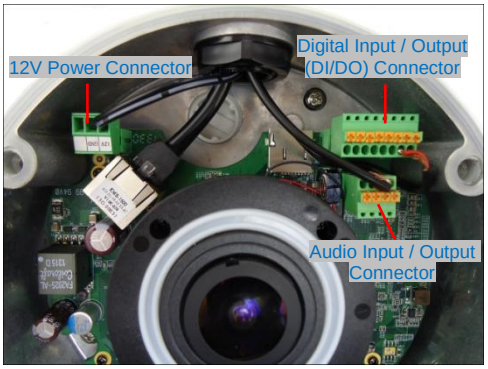
or

Ethernet and External Power Adaptor Cable

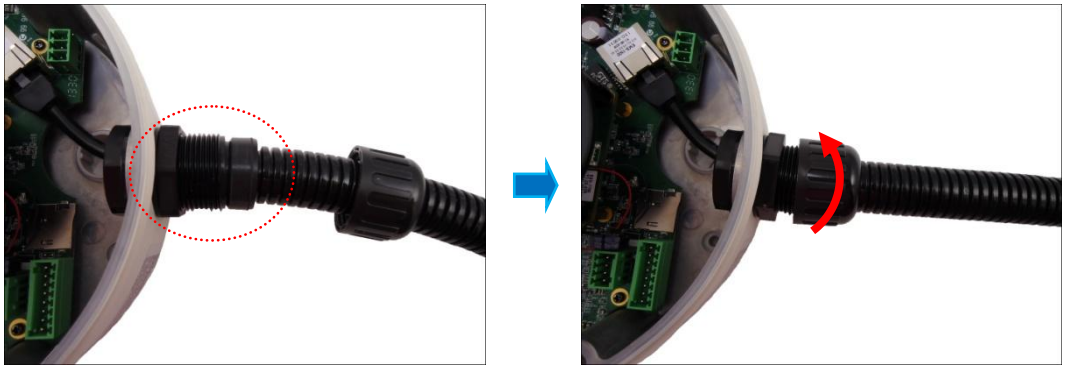
8. Connect the Ethernet cable to the Ethernet port of the camera. If connecting other cables, such as an external power adaptor, audio in/out or DI/DO devices, connect the terminal blocks at this point and connect them to the corresponding connectors of the camera (see ***Other Connections*** on page 22 for more information).



or



9. Insert the sealing rubber into the conduit gland body and attach the clamping nut to complete the cable solution.



NOTE: Make sure the clamping nut is tightly attached to the conduit gland body.

Other Connections

This section describes the procedures in preparing the external devices that you can connect to the camera. The camera supports DC12V power input, Digital Input and Output (DI/DO) and Audio Input and Output devices using the bundled terminal blocks. The use of these devices, however, is optional.

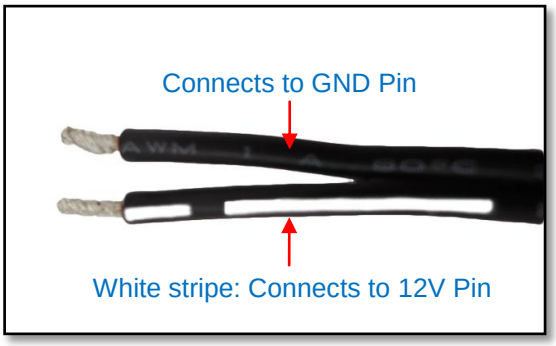
Connecting a Power Adaptor (Optional)

The camera consumes 9.6W power when powered by a Power over Ethernet (PoE) switch that is IEEE802.3af compliant. In case of using a non-PoE switch or your PoE switch has limited power supply, you can purchase a power adaptor and directly connect the camera to a power outlet. The power adaptor must be connected to the supplied terminal block before use.

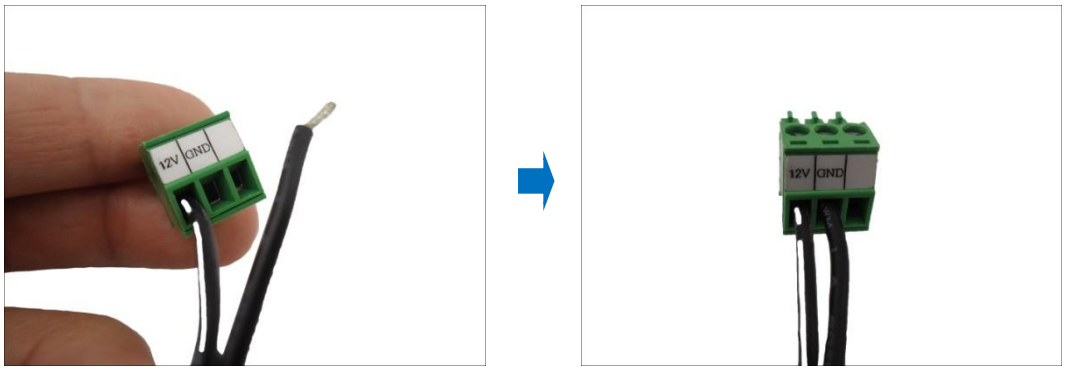
To do this, follow the procedures below:

1. Loosen the screws of the **12V** and **GND** pins of the power terminal block.

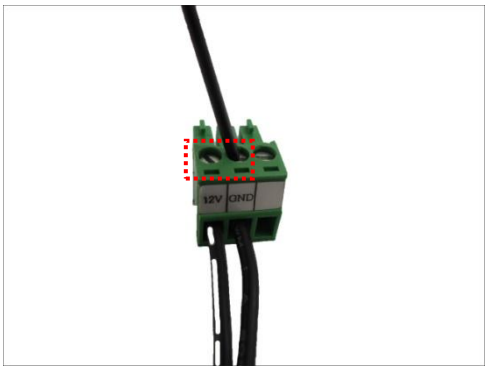
2. Take note that a standard power adaptor cable has two (2) different wires:



3. Connect the wire with the white stripe to the **12V** pin and the other to the **GND** pin.



4. Tighten the screws of the **12V** pin and the **GND** pins to secure the wire connection.



5. Set the prepared power adaptor for connection later. Below is an example of a power adaptor with an attached terminal block.

NOTE: The power adaptor is not bundled in the package.

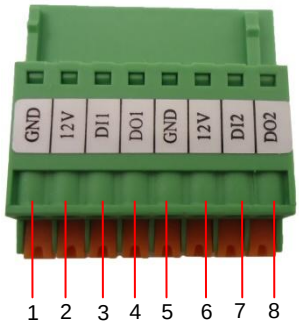
Connecting DI/DO Devices (Optional)

Depending on your surveillance needs, you may connect digital input or output devices to your camera to trigger events or notifications.

Digital Input (DI) devices can be used to notify the camera about an activity in the camera site. DI can be triggers of events. For example, you can connect a “panic button” to the camera; as such when the panic button is pressed, the alarm signal will be sent through the camera. Other common DI device applications are emergency button, smoke detector, passive infrared sensor, etc.

Digital Output (DO) devices are external devices that are activated by the camera upon an event inside the camera. For example, you can connect an “alarm horn” to the camera; as such when an event occurs inside the camera (e.g. detected intruder), the alarm horn will sound. Other common DO device applications are motion-triggered lights, electric fence, magnetic door locks, etc.

You can connect up to two DI and two DO devices to your camera.
Press and hold the orange tab as you insert the wire through the pin slot, then release the orange tab to secure the wire.



To connect input devices (DI), map the pins to one of the pin combinations below:

Device	Pin		Mapping Instructions
Digital Input 1 (DI1)	1	GND	Connect the wires of the first input device to **GND** (Pin 1) and **DI1** (Pin 3).
	3	DI1	
Digital Input 2 (DI2)	5	GND	Connect the wires of the second input device to **GND** (Pin 5) and **DI2** (Pin 7).
	7	DI2	

To connect output devices (DO), map the pins to one of the pin combinations below:

Device	Pin		Mapping Instructions
Digital Output 1 (DO1)	2	12V	Connect the wires of the first output device to **12V** (Pin 2) and **DO1** (Pin 4).
	4	DO1	
Digital Output 2 (DO2)	6	12V	Connect the wires of the second output device to **12V** (Pin 6) and **DO2** (Pin 8).
	8	DO2	

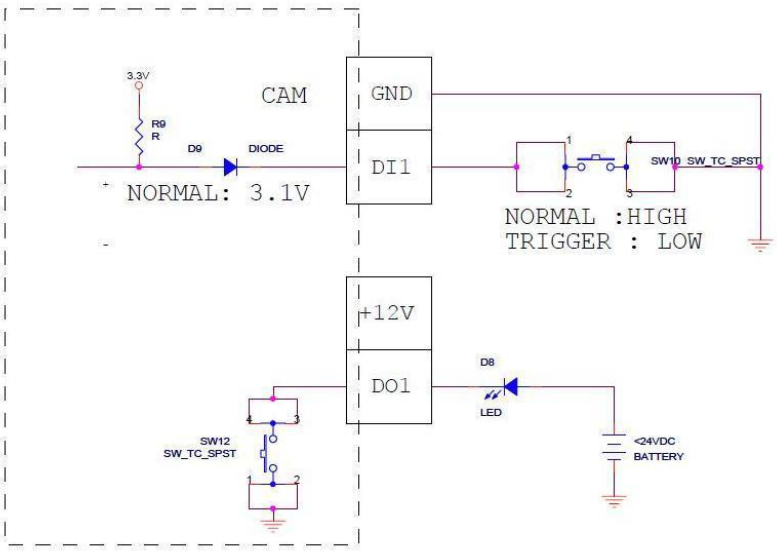
The table below shows the DI/DO connection specifications:

Device			
DI	Connection design		TTL - compatible logic levels
	Voltage	To trigger (low)	Logic level 0: 0V ~ 0.4V
		Normal (high)	Logic level 1: 3.1V ~ 30V
	Current		10mA ~ 100mA
DO	Connection design		Transistor (Open Collector)
	Voltage & Current		< 24V DC, < 100mA

Typical Connection

Based on these specifications, if the DI device has a voltage of 0V ~ 30V or the DO device has a voltage of < 24V (<100mA), then the camera can supply internal power to these devices and there is no need to connect the DI/DO device to an external power source.

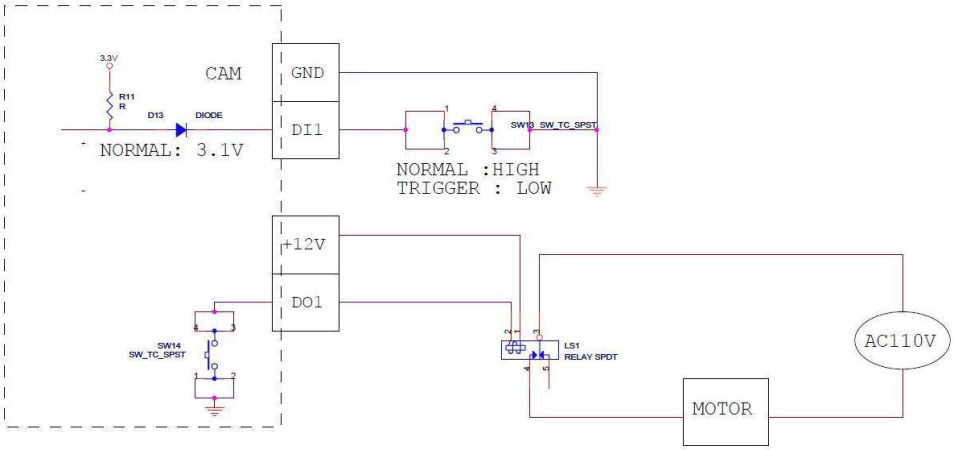
In this case, wire connection to Pins 1 to 4. Use the **GND** and **DI1** pins to connect a DI device and use the **12V** and **DO1** pins to connect a DO device. See wiring scheme below:



Consequently, to connect a second DI or DO device, wire the connection to Pins 5 to 8.

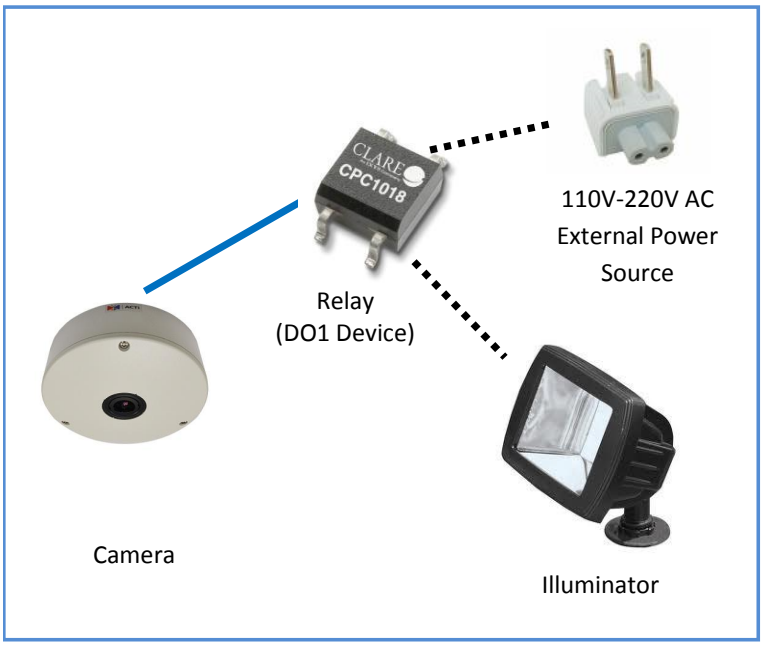
High Voltage DO Device Connection

Even though the camera provides 12V power, this may not be enough for some high voltage DO devices, such as a ceiling light or a motor that opens or closes a gate. In this case, there is a need to connect an external relay. See wiring scheme below:



Note that when choosing an appropriate relay, please refer to its specifications and make sure they match the above design. The triggering circuit voltage has to be around 12V DC and the switch-controlled circuit voltage has to match the external power supply (e.g. 110V AC or 220V AC).

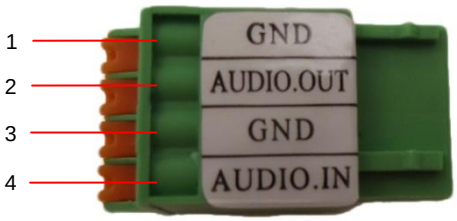
The illustration below is a graphic example of connecting a relay to a high voltage DO device.



NOTE: For more information on DI/DO connections, please refer to the Knowledge Base article *All about Digital Input and Digital Output* downloadable from the link below (*http://www.acti.com/kb/detail.asp?KB_ID=KB20091230001*).

Connecting Audio In / Out Devices (Optional)

Depending on your surveillance needs, you may connect audio input or output device, such as an active microphone or speaker, to your camera. In this case, you need to connect the audio input/output device to the supplied audio terminal block.



To connect audio input / output devices, map the pins to one of the pin combinations below:

Device	Pin		Mapping Instructions
Audio Output	1	GND	Connect the wires of the audio output device to **GND** (Pin 1) and **AUDIO.OUT** (Pin 2).
	2	DI1	
Audio Input	3	GND	Connect the wires of the audio input device to **GND** (Pin 3) and **AUDIO.IN** (Pin 4).
	4	DI2	

Press and hold the orange tab as you insert the wire through the pin slot, then release the orange tab to secure the wire.

NOTE: For more information about AUDIO in connections, please refer to the Knowledge Base article *How to Use Audio-in of ACTi Cameras*, downloadable from the link below (http://www.acti.com/support/KnowledgeBase/outside/detail.asp?KB_ID=KB20100114003).

Accessing the Camera

Configure the IP Addresses

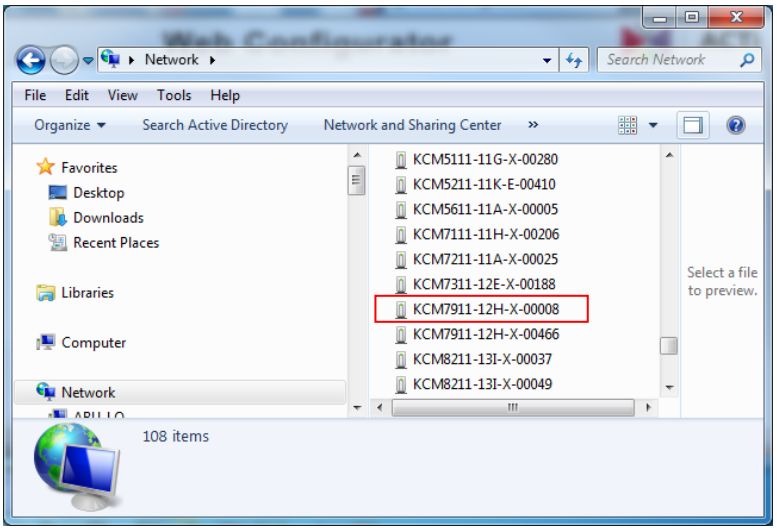
In order to be able to communicate with the camera from your PC, both the camera and the PC have to be within the same network segment. In most cases, it means that they both should have very similar IP addresses, where only the last number of the IP address is different from each other. There are 2 different approaches to IP Address management in Local Area Networks – by DHCP Server or Manually.

Using DHCP server to assign IP addresses

If you have connected the computer and the camera into the network that has a DHCP server running, then you do not need to configure the IP addresses at all – both the camera and the PC would request a unique IP address from the DHCP server automatically. In such case, the camera will immediately be ready for the access from the PC. The user, however, might not know the IP address of the camera yet. It is necessary to know the IP address of the camera in order to access it using a Web browser.

The quickest way to discover the cameras in the network is to use the simplest network search, built in the Windows system – just by pressing the “Network” icon, all the cameras of the local area network will be discovered by Windows, thanks to the UPnP function support of our cameras.

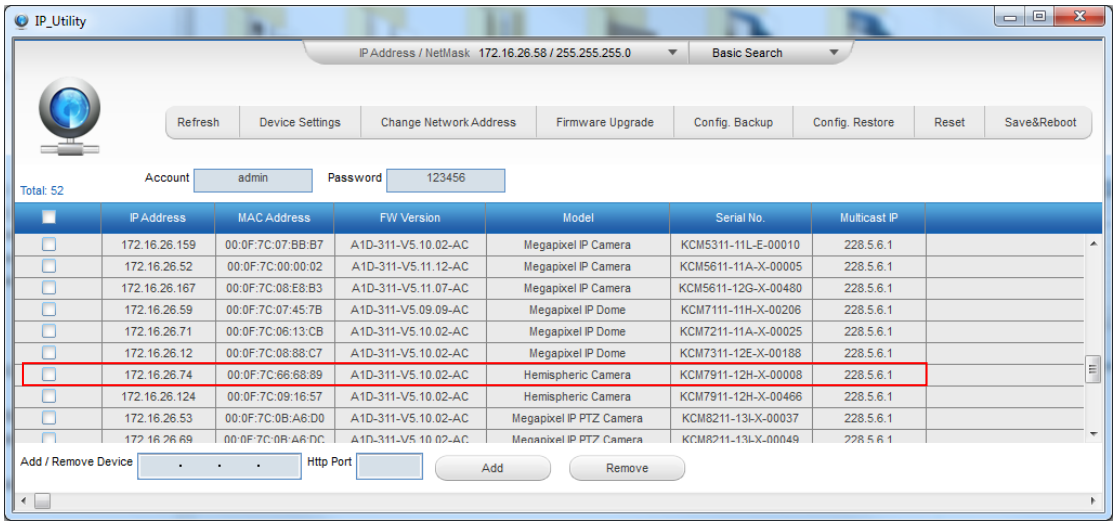
In the example below, the camera that has just been connected to the network is successfully found.



When the left mouse is clicked on the camera model name, the default browser of the PC is automatically launched and the IP address of the target camera is already filled in the address bar of the browser.

If you work with our cameras regularly, then **there is even a better way to discover the cameras in the network** – by using **IP Utility**. The IP Utility is a light software tool that can not only discover the cameras, but also list lots of valuable information, such as IP and MAC addresses, serial numbers, firmware versions, etc, and allows quick configuration of multiple devices at the same time.

The IP Utility can be downloaded for free from **http://www.acti.com/IP_Utility**
When you launch IP Utility, the list of connected cameras in the network will be shown. See sample illustration below:



You can quickly notice the camera model in the list. Click on the IP address to automatically launch the default browser of the PC with the IP address of the target camera already filled in the address bar of the browser.

Use the default IP address of the camera

If there is no DHCP server in the given network, the user may have to manually assign the IP addresses to both the PC and the camera to make sure they are in the same network segment.

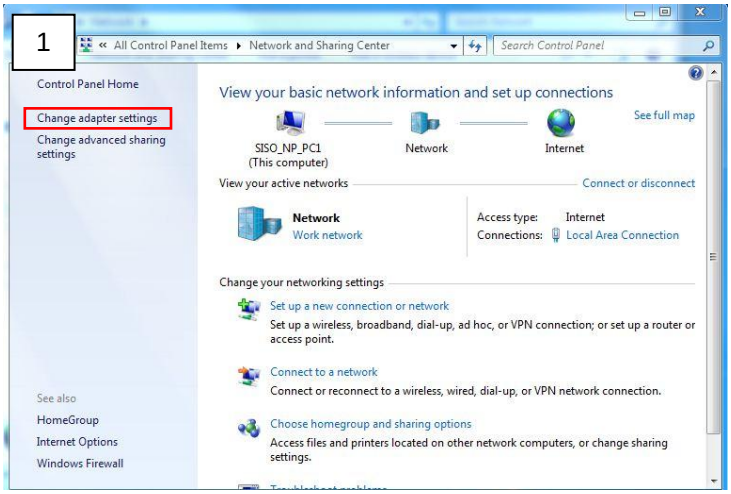
When the camera is plugged into the network and it does not detect any DHCP services, it will automatically assign itself a default IP:

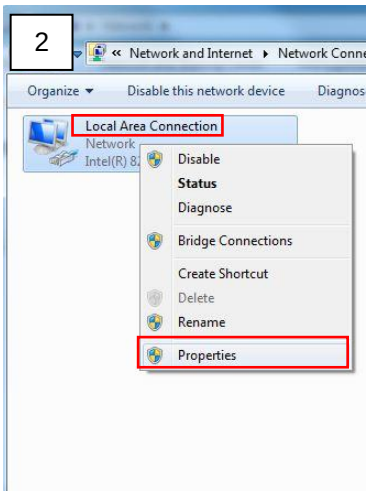
192.168.0.100

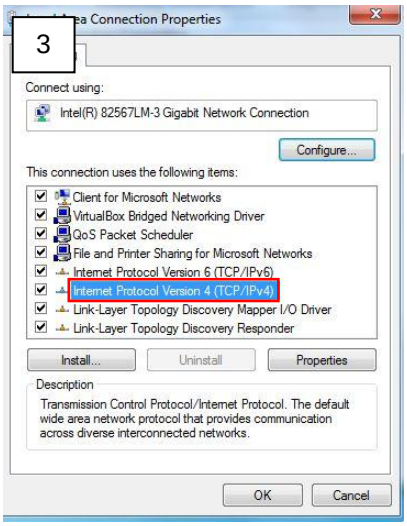
Whereas the default port number would be **80**. In order to access that camera, the IP address of the PC has to be configured to match the network segment of the camera.

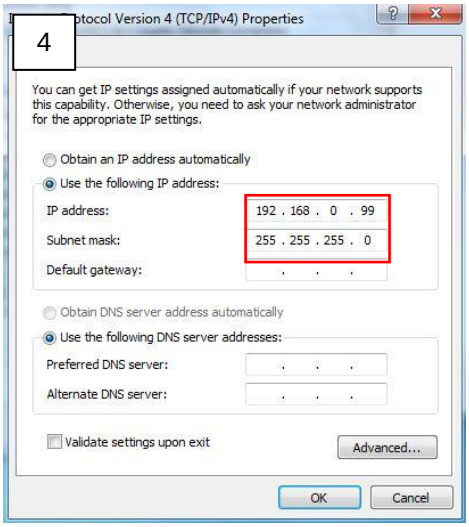
Manually adjust the IP address of the PC

In the following example, based on Windows 7, we will configure the IP address to **192.168.0.99** and set Subnet Mask to **255.255.255.0** by using the steps below:


1
All Control Panel Items ▸ Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
See full map
SISO_NP_PC1 (This computer)
Network
Internet
View your active networks
Connect or disconnect
Network
Work network
Access type: Internet
Connections: Local Area Connection
Change your networking settings
Set up a new connection or network
Set up a wireless, broadband, dial-up, ad hoc, or VPN connection; or set up a router or access point.
Connect to a network
Connect or reconnect to a wireless, wired, dial-up, or VPN network connection.
Choose homegroup and sharing options
Access files and printers located on other network computers, or change sharing settings.
See also
HomeGroup
Internet Options
Windows Firewall

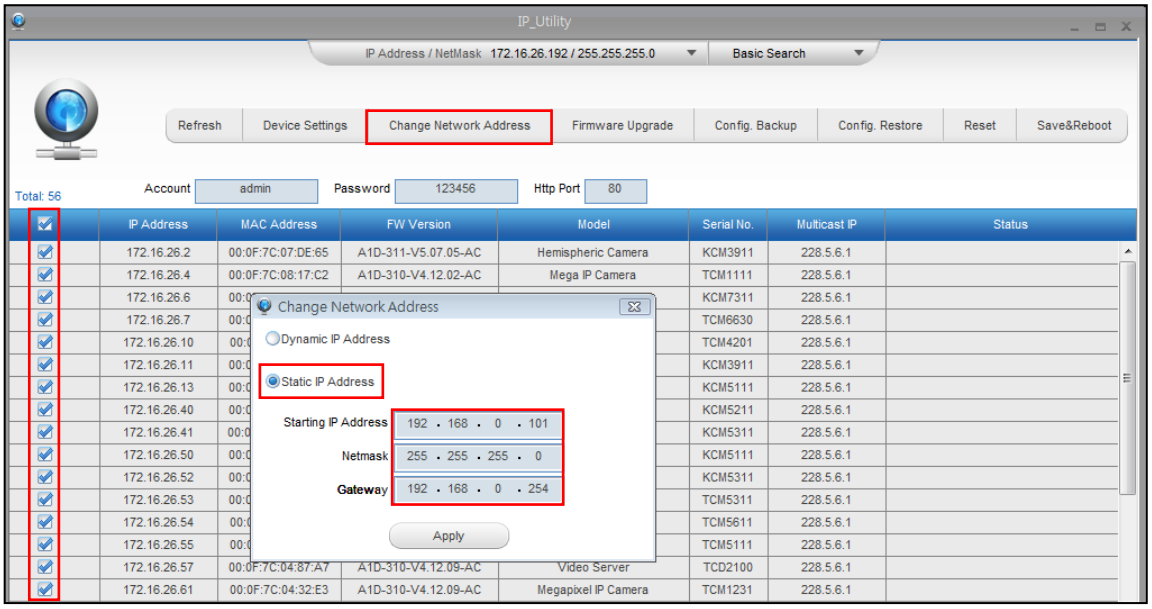





4
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 0 . 99
Subnet mask: 255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

Manually adjust the IP addresses of multiple cameras

If there are more than one camera to be used in the same local area network and there is no DHCP server to assign unique IP addresses to each of them, all of the cameras would then have the initial IP address of **192.168.0.100**, which is not a proper situation for network devices – all the IP addresses have to be different from each other. The easiest way to assign cameras the IP addresses is by using **IP Utility**:



With the procedure shown above, all the cameras will have unique IP addresses, starting from 192.168.0.101. In case there are 20 cameras selected, the last one of the cameras would have the IP 192.168.0.120.

Later, by pressing the “Refresh” button of the IP Utility, you will be able to see the list of cameras with their new IP addresses.

Please note that it is also possible to change the IP addresses manually by using the Web browser. In such case, please plug in only one camera at a time, and change its IP address by using the Web browser before plugging in the next one. This way, the Web browser will not be confused about two devices having the same IP address at the same time.

Access the Camera

Now that the camera and the PC both have their unique IP addresses and are under the same network segment, you can use **Microsoft Internet Explorer** on the PC to access the camera.

NOTE: Only Microsoft Internet Explorer is supported by the camera at the time of writing this documentation. Please refer to our website (www.acti.com) for future upgrades.

Internet Explorer supports the following functionalities:

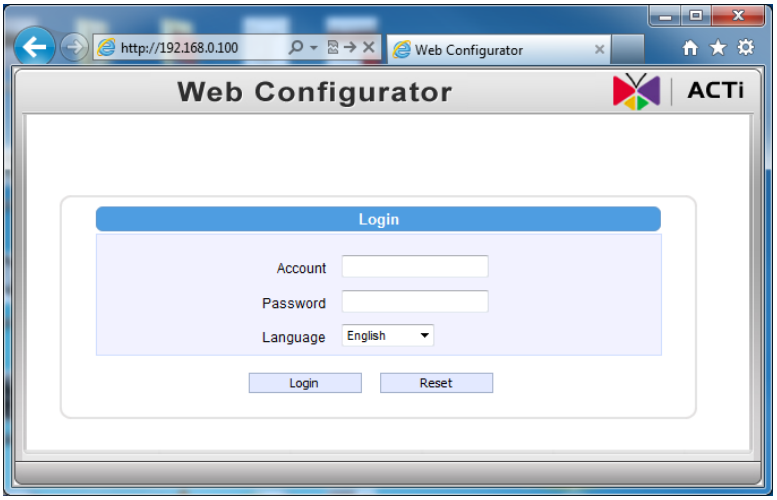
Functionality	Internet Explorer
Live Video	Yes
Live Video Area Resizable	Yes
PTZ Control	Yes
Capture the snapshot	Yes
Video overlay based configuration (Motion Detection regions, Privacy Mask regions)	Yes
All the other configurations	Yes

The ActiveX control for video stream management will be downloaded from the camera directly – the user has to accept the use of such control when prompted so. No other third party utilities are required to be installed in such case.

Assuming that the camera's IP address is **192.168.0.100**, you can access it by opening the Web browser and typing the following address into the Web browser's address bar:

http://192.168.0.100

Upon successful connection to the camera, the user interface called **Web Configurator** would appear together with the login page. The HTTP port number was not added behind the IP address since the default HTTP port of the camera is 80, which can be omitted from the address for convenience.



Before logging in, you need to know the factory default Account and Password of the camera.

Account: **Admin**

Password: **123456**

For further operations, please refer to the **Firmware User Manual**.